

1952

# Personality inventory study of Y.M.C.A. Adult program secretaries

Richard E. Hamlin

*University of Nebraska at Omaha*

Follow this and additional works at: <https://digitalcommons.unomaha.edu/studentwork>

---

## Recommended Citation

Hamlin, Richard E., "Personality inventory study of Y.M.C.A. Adult program secretaries" (1952). *Student Work*. 334.  
<https://digitalcommons.unomaha.edu/studentwork/334>

This Thesis is brought to you for free and open access by DigitalCommons@UNO. It has been accepted for inclusion in Student Work by an authorized administrator of DigitalCommons@UNO. For more information, please contact [unodigitalcommons@unomaha.edu](mailto:unodigitalcommons@unomaha.edu).



PERSONALITY INVENTORY STUDY  
of  
Y.M.C.A. ADULT PROGRAM SECRETARIES

by  
Richard E. Hamlin, B. S.

SUBMITTED IN PARTIAL FULFILLMENT OF  
REQUIREMENTS FOR THE DEGREE  
OF  
MASTER OF ARTS  
in the  
GRADUATE SCHOOL  
of the  
MUNICIPAL UNIVERSITY OF OMAHA  
1952

UMI Number: EP72975

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



UMI EP72975

Published by ProQuest LLC (2015). Copyright in the Dissertation held by the Author.

Microform Edition © ProQuest LLC.

All rights reserved. This work is protected against  
unauthorized copying under Title 17, United States Code



ProQuest LLC.  
789 East Eisenhower Parkway  
P.O. Box 1346  
Ann Arbor, MI 48106 - 1346

## ACKNOWLEDGMENTS

The author wishes to express his grateful appreciation for the valuable assistance rendered by the many persons cooperating in this study. He is particularly indebted to Dr. William H. Thompson, whose guidance as major advisor was most valuable. To Dr. L. N. Garlough, the author is deeply indebted for helpful assistance with the statistical treatment of the data. Mr. Al Hummel was very helpful in offering suggestions at many points as the study progressed. The study certainly would not have been possible without the splendid cooperation of Y.M.C.A. Adult Program and General Secretaries across the country.

R.E.H.

## Table of Contents

	<u>Page</u>
Acknowledgments . . . . .	ii
List of Tables and Graphs . . . . .	iv
Introduction . . . . .	1
History of the Problem . . . . .	1
Need for this Study. . . . .	2
Statement of the Problem . . . . .	5
Review of Previous Research. . . . .	5
Limitations . . . . .	6
Method Used In the Study . . . . .	9
Study of Personality . . . . .	9
Study of Job Performance . . . . .	11
The Results. . . . .	13
Job Performance Ratings. . . . .	13
Bernreuter Inventory Scores. . . . .	15
Analysis of Data. . . . .	17
Statistical Treatment of Data . . . . .	21
Summary . . . . .	26
Conclusions . . . . .	28
Statistical Conclusions. . . . .	28
General Conclusions. . . . .	29
Suggestions for Further Research. . . . .	31
Bibliography. . . . .	33
Appendix A. . . . .	34
Appendix B. . . . .	38
Appendix C. . . . .	44

## List of Graphs and Tables

	<u>Page</u>
Graph 1. "A Comparison of Job Performance Rating on all 100 Men, Rated by General Secretaries". . . . .	14
Graph 2. "Mean Bernreuter Scores on 100 Secretaries In This Study". . . . .	16
Graph 3. Graph Showing the Range "Between 'Strongest' and 'Weakest' Secretary in Bernreuter Personality Traits" . . . . .	18
Table I "Mean Score Bernreuter Ratings on 'Strong', 'Average', and 'Weak' Groups . . . . .	19
Graph 4. "Bernreuter Personality Traits Compared to Job Performance in all 100 Secretaries". . . . .	20
Table II "Combined Chi Squares of All Six Bernreuter Traits". . . . .	23
Table III "Combined Chi Squares of Three Bernreuter Traits--Neurotic Tendency, Introversion, Confidence" . . . . .	24
Table IV "Combined Chi Square of Three Bernreuter Traits--Self-Sufficiency, Dominance, Sociability". . . . .	24

## INTRODUCTION

### History of the Problem

Leaders in the Young Men's Christian Association have been concerned for some time about the decline of activity and comparative lack of participation on the part of young adults in its program. The concern is understandable in view of the fact that the Y.M.C.A. originally started around a nucleus of young adults - young men engaged in the drapery trades in London. The "Y" has emerged through the years as a leader in the field of boys' work, and work with older adults, and has lost its original character of working among young adults.

A Commission was appointed by the Association of Secretaries' Adult Program Section to study the problems affecting work with young adults. Its findings were reported at a conference of Adult Program Secretaries, and later published in a publication entitled "At Work With Young Adults".<sup>(1)</sup> Following this, it was decided that further exploration of the problems of working with young adults was needed.

A Committee, made up of a cross-section of the Adult Program Secretaryship, was called together in St. Louis on two occasions. This group outlined a plan which offered two next steps for study: first, "Blocks to Effective Program Within the Secretary Himself", and, second, "Blocks to Effective Program Within the Movement". Commissions were appointed to follow through on these studies.

---

(1) Allan Ellsworth, "At Work With Young Adults", Association Press, New York, 1950 .

The original purpose of this study was to determine if there are "blocks" to effective adult program within the Adult Program Secretary himself. It was felt that perhaps there are basic motivational factors, personality traits, and other psychological characteristics that might be an obstacle to a man as he attempts to do a quality adult program job. The overall problem posed by the Commission then was: "Is there a relationship between the job performance of an Adult Program Secretary and his psychological makeup?"

Due to the limitations of time and expense, it was decided to limit this particular study of psychological factors within the Secretary to a study of personality. This study, therefore, represents a start in the direction of studying the psychological makeup of Y.M.C.A. Adult Program Secretaries.

#### Need for this Study

The need for studies being done in this area are fairly obvious. It would be valuable for a man coming into Association work in helping him to determine his suitability for Adult Program work. It would be valuable as an aid to the General Secretary in sizing up a prospective Adult Program man's adaptability to this field of endeavor. Life insurance companies are noted in the field of psychological testing for their diagnosis of a man's psychological traits before employing him in their work. Large industrial firms are making much use of tests and measurements to determine the fitness of their employees in psychological terms. Many companies recognize a responsibility for counseling and aiding their people on the basis of such tests.



It would seem that this study is a part of a total need in the Y.M.C.A. movement to determine if its present personnel evaluation devices are adequate. There are many psychological qualities which should be studied in the individual Secretary or prospective Secretary. There are factors such as value, personal adjustment, interest, aptitude, intelligence, etc. These would all justify attention in a comprehensive study of psychological makeup of Adult Program Secretaries, Boys' Work Secretaries, Physical Directors, or any Y.M.C.A. Secretary.

There is much that needs to be done in the entire field of group work in the selection of adequate leaders for its program. This concern is shared by many agencies working in the field of social group work, not just the Y.M.C.A. Very frequently, the social agency executive is faced with the need of more objective instruments with which to measure a prospective leader's fitness for this work.

Dimock and Trecker, <sup>(1)</sup> in speaking of the need for objective testing methods, have this to say:

"With the number of standardized tests now available, for the measurement of general intelligence, social intelligence, personality adjustment, social acceptability, mental hygiene, insight, education philosophy, vocational and social interests, and other phases of personal traits and achievements, it ought to be a reasonable expectation that some of them will be valuable tools in the selection of leaders."

- 
1. Hedley S. Dimock and Harleigh B. Trecker, "The Supervision of Group Work and Recreation", pp. 62-63, New York, Association Press, 1949.

A commission from the National Y.M.C.A. Association of Secretaries, the professional organization of "Y" Secretaries, undertook an exploratory study of the motivation of Y.M.C.A. Secretaries for the Cleveland Conference in June of 1951. Dr. Joseph Hanna,<sup>(1)</sup> a member of the Commission, made these comments in regard to the appraisal of personality traits:

"In appraising motivation for Y.M.C.A. work, it is desirable to discover such conflicts and maladjustments as are likely to disqualify the applicant. A good many techniques have been developed for discovering and identifying such conflicts, and are too complicated for even superficial discussion here. It is taken for granted, however, that, in appraising motivation, one or more of such instruments would be used."

National leaders are concerned with the high turnover of professional staff persons in the Y.M.C.A. B. P. Faubian of the National Y.M.C.A. staff evidenced a concern in a recent talk before the Association of Secretaries meeting in Colorado Springs, Colorado. He said, "In 1951, 493 Y.M.C.A. Secretaries left the work. This was out of a total of 3,660 employed officers. This, compared to only 440 men who entered the work shows why these drop-outs are a major concern."

Mr. Faubian went on to point out that one of the chief factors causing this loss is in the method of indoctrinating the new men to the work. A part of this indoctrination process, he explained, is to find the right job opportunities for each Junior Secretary early in his career. Many men are lost, Mr. Faubian pointed out, because it is taken for granted that they

---

1. Clement A. Duran, Editor, "Professional Perspective - Report of the Triennial A.O.S. Conference", pp. 69, New York: Association Press, 1951.

will start out as Boys' Work Secretary, or their past history indicates they might "take" to Adult Program work.

### Statement of the Problem

The problem that this study sets out to explore is: "Is there a relationship between job performance of Y.M.C.A. Adult Program Secretaries as evidenced by a rating of their General Secretaries, and their personality traits according to the Bernreuter Personality Inventory?"

### Review of Previous Research

A "Y.M.C.A. Yearbook" is published annually and devotes a section to "Research and Studies". A review of this source for several years back reveals nothing done specifically towards a study of the psychological makeup of Adult Program Secretaries.

In 1948, Robert T. Queen wrote a paper entitled "A Professional Selection Plan". This plan was drawn up in cooperation with the counseling and guidance service of the St. Louis, Missouri, Association. It consisted of "...objective testing for the selection of all employees on a basis of interests, aptitudes, personality and intelligence." (1) It was a suggested battery of standardized tests that might be given to prospective Y.M.C.A. employees. It did not deal with a study of these tests throughout the country, however.

Porter H. Turner of Cincinnati, Ohio, conducted a survey in 1946 to determine how adequately staffed local Associations were in their Adult Program departments. Some 320 Associations

---

1. Robert T. Queen, "A Professional Selection Plan", St. Louis, Missouri, Y.M.C.A., 1948.

returned this questionnaire with all types of combinations reported as staffing local Adult Program departments. (1)

In a similar study done on social group workers as a Master's Thesis by Mary Flannigan, (2) a battery of tests was used. She draws the following conclusions:

"From this study of successful and unsuccessful group leaders, using six standardized tests, there appears to be a significant difference in the personality traits between the two groups.

"In analyzing the eighteen personality traits compositely, there is evidence that the persons comprising the successful group in this study in comparison with the individuals making up the unsuccessful group have obtained a high degree of emotional maturity.

"Of the eighteen traits measured in this battery, the successful group leader could be differentiated from the unsuccessful group leader in fourteen of the traits. This is indicated positively in the patterns found in the JOHNSON TEMPERAMENT ANALYSIS, THE PERSONALITY INVENTORY, AND THE CALIFORNIA TEST OF PERSONALITY"

Miss Flannigan's conclusions were based on a comparison study of 18 "successful" group leaders and 18 "unsuccessful" group leaders.

#### Limitations

This study is limited to those Adult Program Secretaries in the Y.M.C.A.'s of the United States who returned the data requested.

It is not the goal of this study to set up comprehensive testing batteries or new standardized measurement devices for

- 
1. Porter H. Turner, "A Survey On Y.M.C.A. Adult Program Personnel", Cincinnati, Ohio, Y.M.C.A., 1946.
  2. Mary A. Flannigan, "A Study of Personality and Interest Traits of Successful and Unsuccessful Group Work Leaders Using Six Standardized Tests", Unpublished Master's Thesis, University of Omaha, Nebraska, 1951.

the study of personality in Y.M.C.A. Adult Program Secretaries. It is rather the goal of this study to see if a relationship exists between ability of job performance and some personality traits.

In this study, there are two highly complex areas that are given attention - personality and job ability. Both are so involved as to make definite conclusions almost impossible. For this reason, this study will raise many more questions than it will answer. Perhaps it will open up further investigation in this field.

For the most accurate results, both job performance and personality should be studied or rated in their own setting - the places in which they are happening. However, to get at results from a sample that is to be found all over the United States, we must set up some type of control devices to give uniform methods for scoring or tabulating. In this way, we can approach a laboratory situation, keeping in mind the limitations of our instruments.

One thing that must be assumed at the onset of a self-rating study is the honesty and cooperation of the subjects tested. We have to further realize that, in answering personality questions on the scale, the individual Secretary will be subject to certain handicaps that may not be the same as those faced by others in the sample. Handicaps of time, lack of interest in answering questions, etc., will be encountered. These are limitations placed on any self-rating or questionnaire study.

The findings will be limited to the responses secured from General Secretaries who rate their men according to their judgment of the man's job ability. Their cooperation and honesty must be assumed.

The job performance items used in the study were taken from the national Y.M.C.A. personnel sources. They are not weighted as to importance because there has been no scientific basis for their relative importance developed. Therefore, the job ability items used in this study are those which have gained acceptance throughout the movement, but are not items which have been scientifically arrived at.

## METHOD USED IN THE STUDY

### Study of Personality

It has already been pointed out that this study is limited to the consideration of personality as evidenced by the Bernreuter Inventory and a job performance rating by General Secretaries. It was felt that personality makes a logical starting place since it has been found to possess a consistency which is valuable. For any given trait, there will be considerable variation between different people, as to degree and amount of this trait.

In order to get the Adult Program Secretary to provide a somewhat objective analysis of some of his personality traits, a standardized test was needed. The personality test which has been probably used more widely than any other is the Bernreuter Personality Inventory. It is standardized for adults, and has been widely used with "normal" adults.

Several criteria went into the selection of a tool to get at personality characteristics. The Bernreuter Inventory was selected because: (1) It is a standardized test. (2) It is easily administered by mail. (3) It classifies its results in terms of six personality traits making a convenient grouping for study comparisons. (4) Its description of tendencies in groups has been sufficient to warrant its use in research by several authorities.<sup>(1)</sup> (5) It affords a large amount of inform-

---

1. Lee J. Cronbach, "Essentials of Psychological Testing", p. 332, New York: Harper & Brothers, 1949 .

ation about the individual in a relatively short amount of time.<sup>(1)</sup>  
 It can be filled out in about 15 to 20 minutes. (6) The cost is low.  
 (about 2¢ per copy)

One difficulty found in using the Bernreuter is the length of time it takes in scoring. Each of the 125 questions is weighted six different ways to accomplish a final weighted score for each of six major traits. These traits are then translated into percentile rank according to the standardized norms on the test. It is these percentile rankings which form the basis of finding the significance of each trait. The six traits which the Bernreuter deals with are: Neurotic Tendency, Self-Sufficiency, Introversion-Extroversion, Dominance-Submission, and Sociability.

Each Bernreuter test was found to take from 40 to 50 minutes to score. By using an electric adding machine, this time could sometimes be cut by a few minutes.

For each of the six Bernreuter traits there is a rather complete explanation of how it should be interpreted. There is no "good" or "bad" rating for these traits. The percentile score that is finally arrived at from the standardized scale must be interpreted in light of each trait and its own desirability. For instance, a person scoring high on the neurotic tendency trait tends to be emotionally unstable. So it would be undesirable to have a high score. But those scoring high in the trait of dominance-submission tend to dominate others in face to face

---

1. Donald E. Super, "The Bernreuter Personality Inventory: A Review of Research", Psychological Bulletin, 1942, 39, p. 94-125.



situations.<sup>(1)</sup> This would seem to be desirable to a degree in leaders.

### Study of Job Performance

The next item of consideration in the method of study is the job performance information needed. The criteria for rating job performance ability were selected from the "Achievement Rating Scale" of the Personnel Services, National Council Y.M.C.A.'s; from the George Williams College Bulletin,<sup>(2)</sup> other studies in adult program work, and several books dealing with adult program work. A committee from a group of Adult Program Secretaries attending an Area Conference selected thirty items which seemed germane to adult program work.

General Secretaries in each Association having Adult Program Secretaries were sent a letter asking their cooperation in the study. The General Secretary in each Association is the "top man", and does the hiring of Secretaries. He is in the most advantageous position to observe the local Secretary at work.

Cards were returned indicating that 263 secretaries dealing with adult program would take the Bernreuter Inventory. These were sent out, along with a request that the General Secretary rate his man "strong", "average", or "weak", according to his ability on the thirty job description items. (See appendix for the card sent and the questionnaires.) There were some fifty

- 
1. Robert G. Bernreuter, "Manual For the Personality Inventory", Stanford, Calif.: Stanford University Press, 1935.
  2. "George Williams College Bulletin", pp. 39-41, Chicago, Ill.: George Williams College, 1950.

to sixty returned, and a follow-up card was sent out to those who had not sent a reply to date. This brought in enough to bring the total number to just over one hundred replies. However, several of the forms were not adequately filled out so as to be useable. These were immediately returned to the source, asking that they complete the information and return it. A third card then went out to those who did not reply. This finally brought in enough tests to number one hundred, forming the basis for the study.

## THE RESULTS

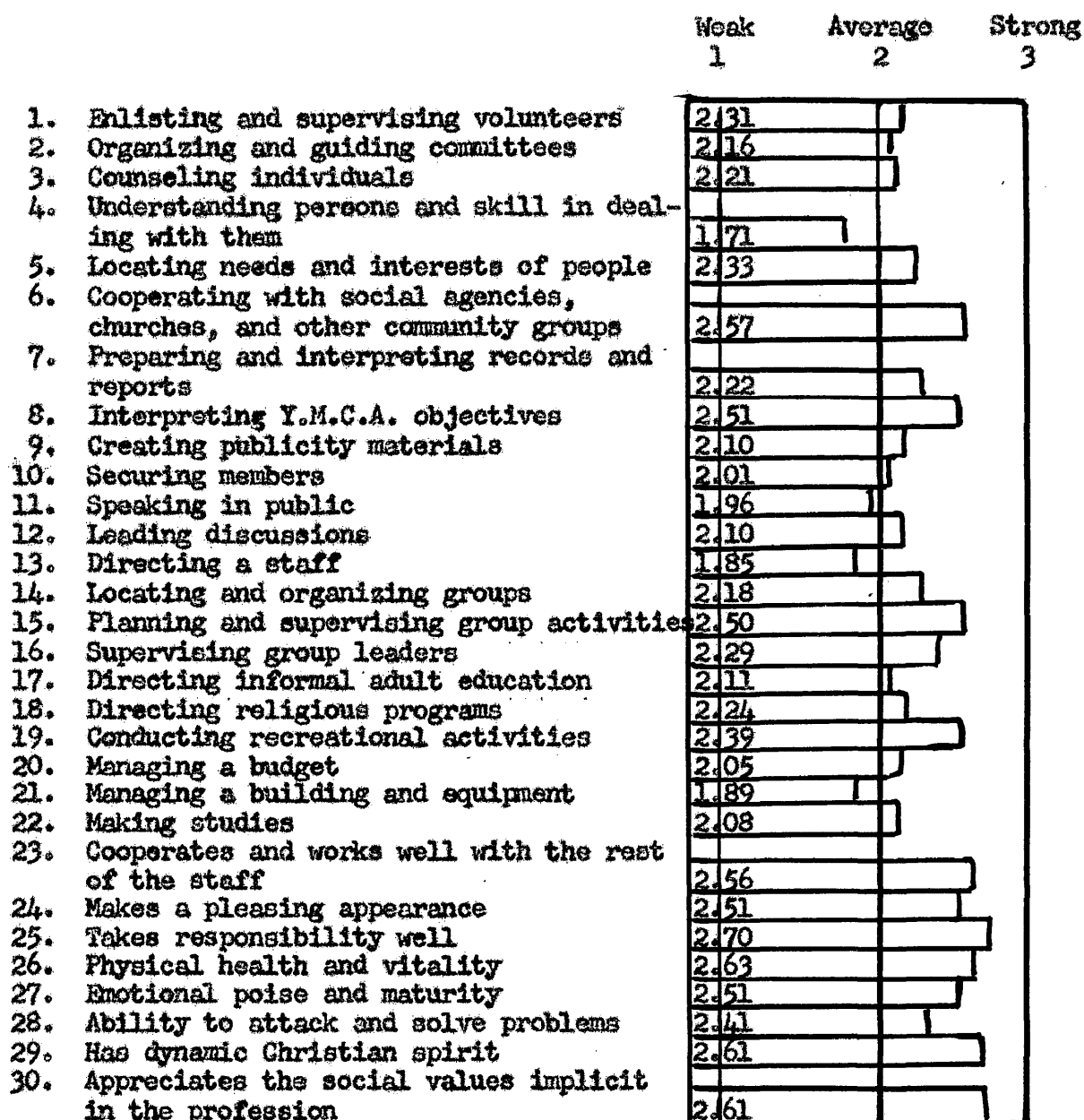
### Job Performance Ratings

To become acquainted with the data, it may be informative to take a look at the total results first. Graph I, Page 14, illustrates the ratings given all one hundred secretaries on each of the thirty job performance items.

In this graph, each job performance item is named. Opposite the performance item is a bar showing the weighted average for that item. A simple weighting of three for strong, two for average, and one for weak was used.

From these data, it appears that General Secretaries considered their men strongest at the point of taking responsibility. The next highest score was that of "physical health and vitality". "Has a dynamic Christian spirit" and "appreciates social values implicit in the profession" also ranked high in the General Secretaries' estimations.

According to these ratings, Adult Program Secretaries seem to be weak at the point of "Understanding persons and skill in dealing with them". Other weak items are "Directing a staff", "Managing a building and equipment", and "Speaking in public".



GRAPH 1. A COMPARISON OF JOB PERFORMANCE RATINGS ON ALL 100 MEN AS RATED BY THEIR GENERAL SECRETARIES

NOTE: The scores in the boxes to the right are mean scores of all 100 men in this study as rated by their General Secretaries. "Weak" has been given a value of 1, "Average" a value of 2, and "Strong" a value of 3.

### Bernreuter Personality Inventory Scores

Results on the Bernreuter scores came out about as one would expect for men engaged in Y.M.C.A. Adult Program work.

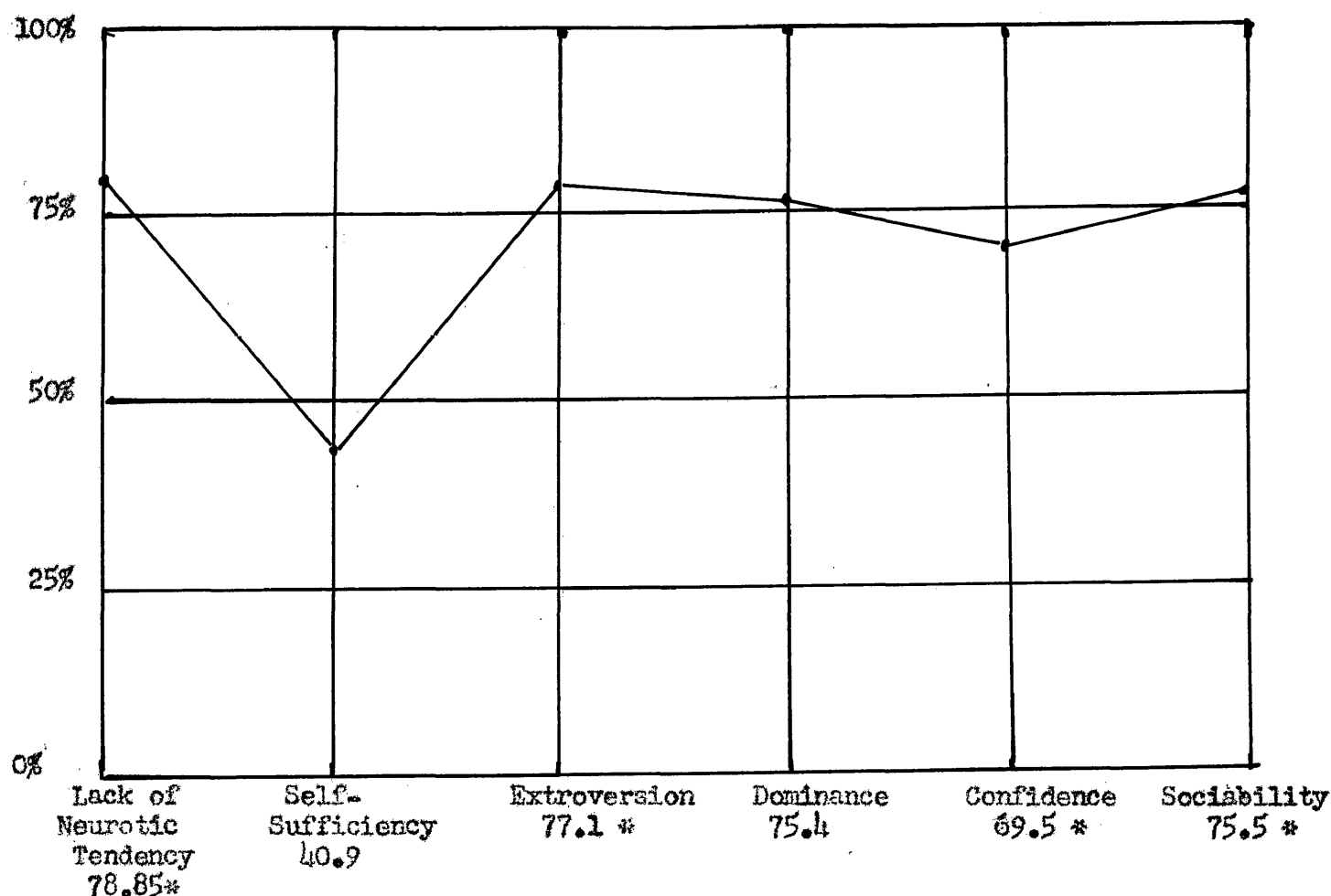
Graph 2. on Page 16 shows that the mean scores for one hundred Adult Program Secretaries demonstrate little neurotic tendency. The mean score of the entire group shows that it is a fairly self-sufficient group.

As a whole, the group of one hundred Secretaries displays little evidence of being introverted. Out of the normal population of adult males, this group would tend to live less within themselves, and be somewhat extroverted.

The trait of dominance is striking in these results. The group of one hundred Secretaries ranks above the 75th percentile for adult males in dominance. This would mean that the Secretaries would tend to dominate others in face to face relationships.

The graph shows that the Secretaries, as a group, do not lack confidence. They tend to display confidence in most situations, according to the Bernreuter explanation.

As a group, the average scores show that the Adult Secretaries are quite sociable. According to the Bernreuter explanation, they would tend to prefer being with people than to being alone.



GRAPH 2. MEAN BERNREUTER SCORES ON  
100 ADULT PROGRAM SECRETARIES

This graph shows the mean scores of all 100 Secretaries in the study on the Bernreuter Personality Inventory. It will be noted that the Bernreuter trait Neurotic Tendency has been altered in name for ease of interpretation. This same designation of traits will be used in the following graphs. For instance, Neurotic Tendency now reads "Lack of Neurotic Tendency". Those scoring higher tend to lack the Neurotic Tendency that those scoring lower on the scale have. Certain scores have been converted to read more clearly on the graphs. Those traits in which the score has been converted will be indicated by an asterisk (\*). This consists of subtracting the original score from 100%. This makes all scores read as "desirable" qualities. This same method will be used in the other graphs to follow.

## ANALYSIS OF DATA

The heart of the study is in the comparison between job performance ratings and the Bernreuter Personality Inventory scores.

The data will be presented in various ways to make it more meaningful. The first comparison shows the top man according to the General Secretaries' ratings, and the bottom man, and their Bernreuter scores. This is for interest only, and is not treated statistically. (Graph 3, Page 18)

Next a graphic presentation will be made to show the total average or mean scores as they compare to total job performance ratings on all 100 men. (Graph 4, Page 20)

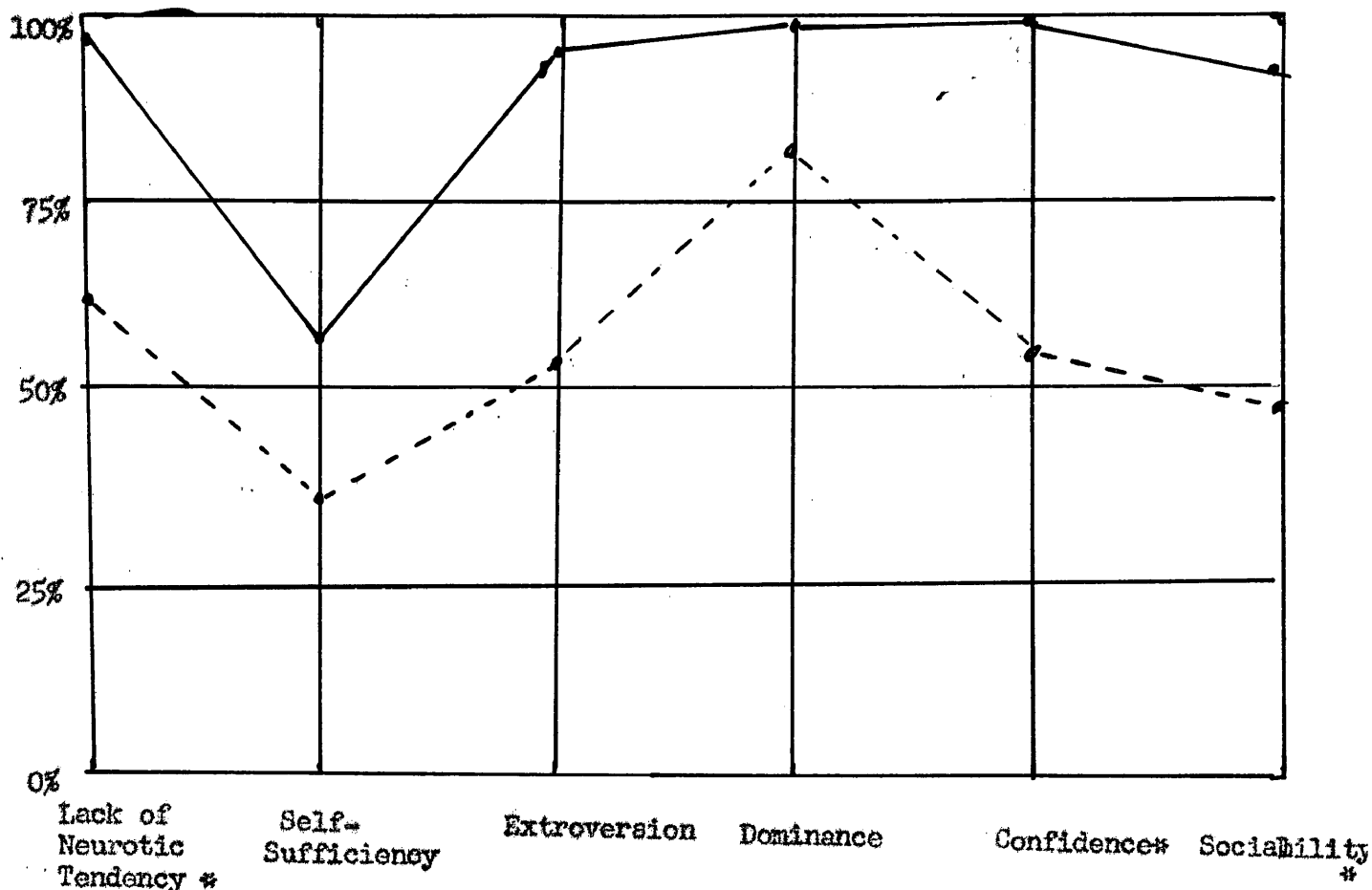
The more reliable treatment of the data will be shown in relation to the statistical presentation. This will include an interpretation of what the statistical results mean.

After the presentation of this data, some general conclusions can be drawn.

On Page 18, a graph shows the comparison of the "strongest" and "weakest" Secretary out of the 100 tested and their individual Bernreuter Personality Inventory Scores.

The "stronger" Secretary shows a score of 99% lack of Neurotic Tendency, 54% Self-Sufficiency, 94% Extroversion, 98% Dominance, 98% Confidence, and 89% Sociability.

The "weaker" Secretary shows a score of 63% lack of Neurotic Tendency, 35% Self-Sufficiency, 48% Extroversion, 79% Dominance, 54% Confidence, and 46% Sociability.



GRAPH 3. GRAPH SHOWING THE RANGE BETWEEN "STRONGEST" AND "WEAKEST" SECRETARY IN BERNREUTER PERSONALITY TRAITS

———— The Adult Program Secretary with the greatest strength in job performance.

- - - - The Adult Program Secretary with the lowest rating of strength in job performance.

Graph 4 shows an interesting comparison between the Bernreuter scores of the "strongest" and the "weakest" Secretary rated. This shows the "stronger" man in terms of job performance is almost without neurotic tendencies on the Bernreuter. The "weaker" man on job performance shows some degree of neurotic tendency.

The "stronger" Secretary is quite self-sufficient, according to the Bernreuter, and tends to be more extroverted than introverted.



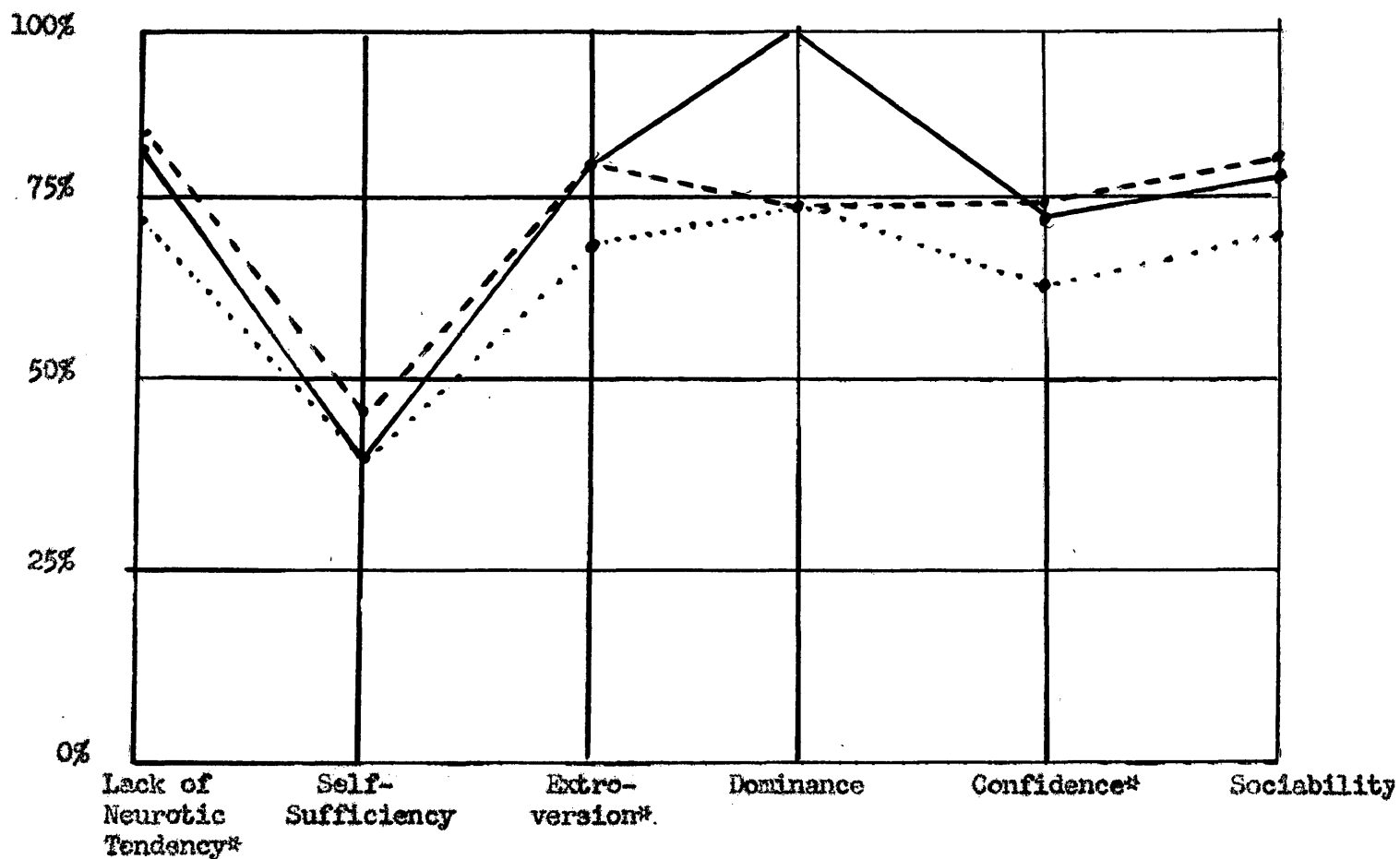
The "stronger" man is very dominant - within the 98th percentile of adult males. He is markedly more confident and shows a much higher degree of sociability.

The next comparison is demonstrated on Graph 4 on Page 20. It shows the comparison of job performance and Bernreuter Personality traits on all one hundred men. This graph is made of average scores on the Bernreuter of the "strongest" one third, the next "strongest" or "average" third, and the least "strongest" or "weak" third.

The relationship of "strongest", "average", and "weak" were arrived at by ranking all one hundred men by means of a simple weighting technique. This technique included the multiplication of the number times a man was rated "strong" by 3. The number of times he rated "average" was multiplied by 2. Then the number of times he rated "weak" was multiplied by 1. These weighted totals were then summed up and divided by 6. The men were then put on a scale of the highest total weighted score first, the next highest next, etc. Then these one hundred men were divided into the "strongest" one third, the "average" one third, and the "weak" one third.

The results of the comparison of job performance and Bernreuter Personality traits on all one hundred men is shown in Table I below numerically, and graphically on Page 20.

Table I Mean Score Bernreuter Ratings on "Strong", "Average", & "Weak" Groups						
	Neurotic Tendency	Self-Suff- iciency	Introversi- on- Extroversion	Dominance	Confidence	Sociabil- ity
Strong	18%	39%	21%	98%	28%	22%
Average	17%	44%	21%	74%	27%	21%
Weak	28%	39%	30%	74%	36%	30%



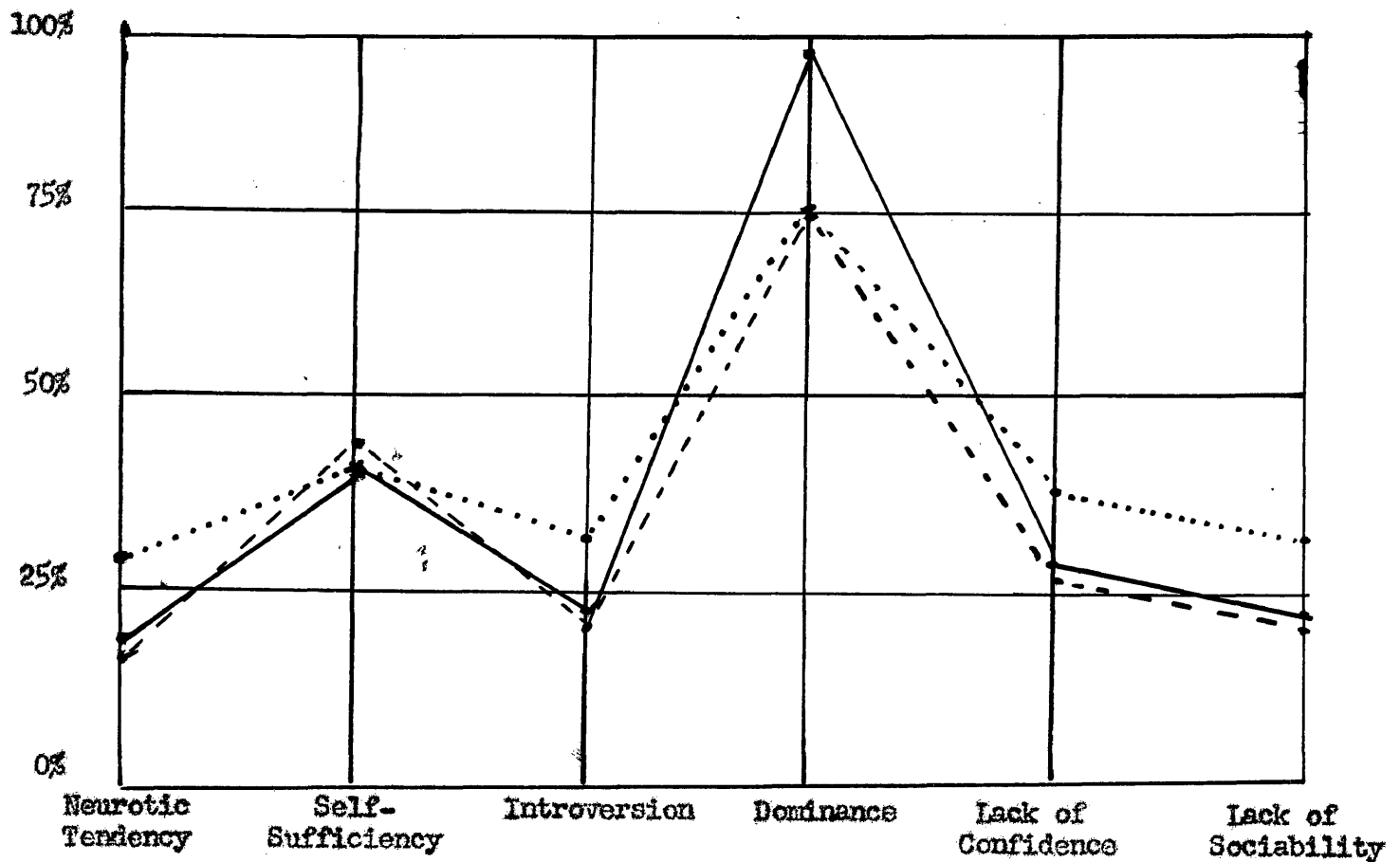
GRAPH 4. BERNREUTER PERSONALITY TRAITS COMPARED  
TO JOB PERFORMANCE  
IN ALL 100 ADULT PROGRAM SECRETARIES  
(THESE ARE MEAN SCORES)

- Those Secretaries rated strongest in job performance.
- - - - Those Secretaries rated next strongest in job performance.
- ..... Those Secretaries rated weakest in job performance.

Graph 4 shows the mean scores graphically that are listed in Table I on Page 19.

GRAPH IV

BERNREUTER PERSONALITY TRAITS COMPARED  
TO JOB PERFORMANCE  
IN ALL 100 ADULT PROGRAM SECRETARIES  
(THESE ARE MEAN SCORES)



- Those Secretaries rated strongest in job performance.
- - - - Those Secretaries rated next strongest in job performance.
- ..... Those Secretaries rated weakest in job performance.

Graph IV shows the mean scores graphically that are listed in Table I on Page 19.

## STATISTICAL TREATMENT OF DATA

The first step in the statistical treatment of the data was to score all the Inventories returned according to the directions in the Manual. Raw scores were then converted to percentile scores according to the standardized scores found in the Bernreuter Manual.<sup>(1)</sup> (Percentile scores are found on the test results in Appendix B.)

The next step was to weight the job performance results on each man and rank them in order of strength of job performance. This is explained on Page 19.

Next, the one hundred men were ranked on a basis of strong, average, and weak, in three categories.

These two kinds of data - Bernreuter scores and job performance results - were worked into a 3 x 3 grid technique. For instance, on BI-N, or neurotic tendency, there were two men who were in the strong third and also in the upper one-third percentile ranking of neurotic tendency. There were five men who were in the strong third and also in the middle third percentile ranking of neurotic tendency. A tally of this kind was done in all of the six Bernreuter traits. (See Appendix C)

Chi square was then calculated on each of these Bernreuter categories to see if there was a significant difference existing between the groupings, strong, average, and weak, according to neurotic tendency, self-sufficiency, etc.

Chi square gives the basis for acceptance or rejection of the hypothesis that there is a random association. Low chi squares give a high probability of there being a random association. In

---

1. Bernreuter, op. cit., p. 2.

this case, the null hypothesis cannot be rejected. In the case of high chi squares, they give a high probability of there being a significant association. In this case, the null hypothesis is rejected.

The formula for chi square is as follows:

$$\chi^2 = \sum \frac{(X - m)}{m}$$

or:

$$\chi^2 = \text{Sum} \left( \frac{(\text{Observed} - \text{Calculated})^2}{\text{Calculated}} \right)$$

These chi square values were then interpreted on a table for the values of chi square to determine the statistical meaning or significance. The table in "Statistical Methods" by Snedecor<sup>(1)</sup> was used.

The chi square calculations on all six Bernreuter categories are illustrated in the Appendix C.

---

1. George W. Snedecor, "Statistical Methods", p. 190, Ames, Iowa: The Iowa State College Press, 1946.

TABLE II

## COMBINED CHI SQUARES OF ALL SIX BERNREUTER TRAITS

<u>Trait</u>	<u>Chi Square</u>
Neurotic Tendency	8.370
Self-Sufficiency	.577
Introversion	6.638
Dominance	2.697
Confidence	5.162
Sociability	1.964
<hr/>	
Sum of 6 Chi Squares	25.428
Degrees of Freedom	24
5% Level of Significance with 24 degrees freedom	36.4

It may be seen from the above table that combining all six Chi Square values yields a combined Chi Square of 25.4. This Chi Square, with 24 degrees of Freedom, is not great enough to indicate a significant association. It is readily seen, therefore, that there is no significant association between job performance and Bernreuter Personality traits on the one hundred men tested according to the combined Chi Square treatment of the data.

TABLE III

COMBINED CHI SQUARES OF THREE BEHNREUTER TRAITS—  
NEUROTIC TENDENCY, INTROVERSION, CONFIDENCE

<u>Trait</u>	<u>Chi Square</u>
Neurotic Tendency	8.370
Introversion	6.638
Confidence	5.162
<hr/>	
Sum of 3 Chi Squares	20.170
Degrees of Freedom	12
5% Level of Significance with 12 Degrees Freedom	21.03

In adding up or combining the three traits having the greater chi squares, it may be seen that there is only .86 value between the value of combined Chi Squares for these three traits and the 5% level of significance value.

It is feasible to conclude that this combination of Neurotic Tendency, Introversion, and Confidence hold significance of association with job performance in the one hundred men tested.

TABLE IV

COMBINED CHI SQUARES OF THREE BEHNREUTER TRAITS --  
SELF-SUFFICIENCY, DOMINANCE, AND SOCIABILITY

<u>Trait</u>	<u>Chi Square</u>
Self-Sufficiency	.577
Dominance	2.697
Sociability	1.964
<hr/>	
Sum of 3 Chi Squares	5.238
Degrees of Freedom	12
5% Level of Significance with 12 Degrees of Freedom	21.03

In examining this combination of Chi Square values for Self-Sufficiency, Dominance, and Sociability, it may be seen that the association of the combination is definitely not significant. The 5.23 value of the combined Chi Square is too far from the 5% threshold of significance, 21.03, to be considered significant. Therefore, the combined traits of dominance, self-sufficiency, and sociability are not significantly associated with job performance in the one hundred men tested and rated by their General Secretaries.



## SUMMARY

Adult Program Secretaries in the Y.M.C.A. throughout the United States were given the Bernreuter Personality Inventory. Their General Secretaries rated them on their job performance according to thirty items selected by a committee of Y.M.C.A. Secretaries.

One hundred of these Inventories and ratings were finally secured from all over the country. This was a return of about 25%, since over four hundred were sent out.

The Bernreuter Inventory scores the individual on the basis of six basic personality traits, i.e., neurotic tendency, self-sufficiency, introversion-extroversion, dominance, confidence, and sociability.

All one hundred Secretaries were found to have mean scores indicating a low amount of neurotic tendency, a fairly high self-sufficiency score, a low amount of introversion, a very high amount of dominance as a group, a fair amount of confidence, and a great amount of sociability as a group.

The central problem of the study was to determine if there is a relationship between job performance of Adult Program Secretaries and their personality traits as evidenced on the Bernreuter. A Chi Square very close to the 5% level of significance was found for the relationship between strength of job performance as rated by General Secretaries, and lack of neurotic tendency as demonstrated by the Bernreuter. However, the association was not statistically significant.

There was found to be a strong tendency for stronger Adult Program Secretaries to be less introverted and have more confidence, although these two traits did not show statistically significant association to job performance.

There was no significant difference shown between the strong, average, and weak job performance groupings and their personality traits of self-sufficiency, dominance, and sociability.

The most interesting result of the study is the significance shown in the combination of neurotic tendency, introversion, and confidence Bernreuter traits as related to job performance. This study shows that the more successfully rated Adult Program Secretaries, according to their General Secretaries, show a combination of less neurotic tendency, more confidence, and less introversion on the Bernreuter Inventory.

## CONCLUSIONS

### Statistical Conclusions

From the statistical treatment of the data, some conclusions may be drawn.

The Chi Square 8.37 for neurotic tendency is not quite large enough to indicate a significant association between strength in job performance and lack of neurotic tendency as indicated on these one hundred men in the Bernreuter category BI-N.

For the Bernreuter category B2-S, self-sufficiency, the Chi Square .5774 indicates that there is no significant association between job performance strength and self-sufficiency as found in these one hundred men.

The chi square 6.638 is not quite large enough to be at the 5% level of significance. Therefore, it indicates that there is not a significant association between job performance strength and introversion-extroversion, (B3-I), on these men.

In B4-D, the chi square of 2.698 indicates that there is no significant association between job performance strength and the trait of dominance on the men tested.

The chi square 5.162 on F1-C demonstrates that there is no significant association between strength of job performance and the trait of confidence in these one hundred men.

The low value of chi square, 1.964, in F2-S indicates that there is no significant association between job performance and the trait of sociability on the one hundred men.

By combining all Chi Squares and testing the combination at the 5% level of significance, it has been found that there is no significant association between job performance and the combined six Bernreuter Personality traits of these one hundred men.

However, the three larger Chi Square values for neurotic tendency, introversion, and confidence, when combined, do have significance. It may be concluded that there is a significant association between job performance of these one hundred men and the combined traits of neurotic tendency, introversion, and confidence. Does this mean that the more capable Adult Program Secretary, as rated by his General Secretary, is more extroverted, has less neurotic tendency, and is more confident? The statistical treatment would seem to show this - but only when the three traits are considered together.

#### General Conclusions

None of the six Bernreuter Personality traits was found to have a statistically significant difference between strong, average, and weak job performance groupings of Adult Program Secretaries.

Three of the traits were found to be close to the 5% level of significance - the trait of introversion-extroversion, the trait of confidence, and the trait of Neurotic Tendency.

It may be seen that the stronger Adult Program Secretaries, in terms of job performance, have fewer neurotic tendencies, as shown by the Bernreuter Inventory, as a group than do the rest of the one hundred men studied, but there is not a statistically significant association.

The study has shown that there is hardly any difference in the strong, average, and weak groupings and their self-sufficiency ratings on the Bernreuter.

This study shows that there is no statistically significant association between strength of job performance and the trait of extroversion on these 100 Secretaries.

There seems to be little association in the strength of job performance and the trait of dominance in those Adult Program Secretaries tested, according to the Bernreuter results.

There is no significant association between strength of job performance and the Bernreuter trait of confidence on those Secretaries tested in the study.

Little association between strength of job performance as rated by General Secretaries, and the trait of sociability, as shown by the Bernreuter, was found in those Adult Secretaries tested.

An interesting combination of the traits of neurotic tendency, introversion, and confidence has been seen to have significant association to job performance in the men tested. (This means that, in looking for desirable traits in an Adult Program Secretary, according to this study, one would look for a man with a combination of little neurotic tendency, little introversion tendencies, and more confidence as shown on the Bernreuter.

## SUGGESTIONS FOR FURTHER RESEARCH

The Y.M.C.A. year book for 1951 has this to say in its conclusion of a summary on "Personnel Adjustments": "Recognition was given in 1950 to the development of a comprehensive plan for research to test recruiting processes, selection and placement, appraisal and other personnel practices." It goes on to say: "With the cooperation of the National Board's Research Committee and the two Association colleges, it was anticipated that ways could be found to complete such a research program."

That this particular study meets one segment of the total need as described above is demonstrated by a letter from J. E. Sproul, Executive Secretary for Research and Studies, National Council of YMCAs. He writes, in part, "This seems to me to have been an important bit of study. I hope you can get good attention to it throughout the country with YMCAs."

A question that is raised by this type of study in the field of Y.M.C.A. personnel is that there seems to be a need to validate our assumptions about what makes up good job performance in the Adult Program Secretary. This would constitute an extensive piece of research in itself - the validation of the kinds of items that have traditionally been used by the Y.M.C.A. National Personnel office and others.

Other areas that need to be explored, it would seem, are such psychological factors in the makeup of the Adult Program Secretary as values, intelligence, aptitude, temperament, etc. These factors, when correlated with valid job performance ratings, would give a much more complete picture of the kind of person needed for effective Y.M.C.A. Adult Program work.

A more complete battery of tests and measurements, as suggested above, would certainly be of great benefit to a new man coming into Y.M.C.A. work. It would be of value to the Association from the standpoint of money and effort saved in hiring a "good risk".

This study merely points the way to more complete information that is needed about Boys' Work Secretaries, Physical Directors, and other employed officers in the Y.M.C.A.

In a recent review of research developments in Human Relations prepared by Dr. Clifford M. Carey, National Council Staff Y.M.C.A., some study along the lines of personality are indicated. Quoting from this document, "While formal structure will determine the role an individual takes, his goals and personality characteristics will tend to determine the effectiveness of his performance in that role."

In another spot, the review raises the question: "What are the implications for Association personnel selection of the studies of the evaluation of various procedures for judging leadership ability? What implications do these studies have for the Personal History Record and appraisal procedures?"<sup>(1)</sup>

It would seem that there might also be some implications for further research along the lines of using personality and job performance studies in relation to executive supervision. Could devices be made up that would appraise the job performance of a man related to his personal characteristics, such as personality, values, etc.? Could this device then be used in professional "coaching" or supervision?

---

1. Clifford M. Carey, "A Review of Research Developments in Human Relations", Unpublished manuscript, National Council of YMCAs, New York, 1952.

## BIBLIOGRAPHY

- Bernreuter, Robert G., "Manual For the Personality Inventory", Stanford, Calif.: Stanford University Press, 1935.
- Caray, Clifford M., "A Review of Research Developments In Human Relations", Unpublished manuscript, National Council of YMCAs, New York, 1952.
- Cronbach, Lee J., "Essentials of Psychological Testing", p. 332. New York: Harper & Brothers, 1949.
- Dimock, Hedley S., and Trecker, Harleigh B., "The Supervision of Group Work and Recreation", pp. 62-63. New York: Association Press, 1949.
- Duran, Clement A., Editor, "Professional Perspective - Report of the Triennial A.O.S. Conference", pp. 69. New York: Association Press, 1951.
- Ellsworth, Allen, "At Work With Young Adults," New York: Association Press, 1950.
- Flannigan, Mary A., "A Study of Personality and Interest Traits of Successful and Unsuccessful Group Work Leaders Using Six Standardized Tests", Unpublished Master's Thesis, University of Omaha, Omaha, Nebraska, 1951.
- "George Williams College Bulletin," pp. 39-41, Chicago Illinois: George Williams College, 1950.
- Queen, Robert T., "A Professional Selection Plan", St. Louis, Missouri, YMCA, 1948.
- Snedecor, George W., "Statistical Methods, p. 190, Ames, Iowa: The Iowa State College Press, 1946.
- Super, Donald E., "The Bernreuter Personality Inventory : a Review of Research", Psychological Bulletin, 1942, 39, p. 94-125.
- Turner, Porter H., "A Survey on YMCA Adult Program Personnel", Cincinnati, Ohio, YMCA, 1946.



## APPENDIX A

Dear General Secretary:

June is soon! The Cleveland Convention is soon! One of the important Conferences in Cleveland will be the Association of General Program Secretaries' Triennial Session.

In preparation for this A.G.P.S. Conference, many of us have been working on commissions to determine the blocks that a Program Secretary faces in carrying out effective adult program. My particular assignment is the "Psychological Blocks Within the Program Secretary."

This study will be based on the Bernreuter Personality Inventory. We are asking that General Secretaries have their Adult Program Secretaries fill in the Inventory and return it to us. Along with the Inventory, the General Secretary will be asked to answer a few questions about this man's job performance.

If you would be willing to have us send you a copy of the Bernreuter, would you please fill in the enclosed post card and return it at once? We must have the cards by April 27th in order to send you the material and complete the study for the June conference.

You will share in the benefits of this study by getting copies of the results, and by the final report of the study at Cleveland.

Cordially yours,

Richard E. Hamlin  
Chairman, AGPS Commission  
"Psychological Blocks Within  
the Adult Program Secretary "

Personality Inventory Study  
of  
Y.M.C.A. Adult Program Secretaries

For presentation at the Association of General Program Secretaries  
Centennial Meeting  
in  
Cleveland, Ohio  
June 18-21, 1951

Mr. General Secretary:

Thank you for indicating that you will cooperate with the study.

Your participation in this study will give you an opportunity to get an objective evaluation on one or two of your staff--without cost.

Enclosed are copies of the Bernreuter Personality Inventory. This is one of the most widely accepted and used personality tests. It rates adults according to the following basic psychological factors: (1) Neurotic tendency; (2) Self-Sufficiency; (3) Introversion-extroversion; (4) Dominance-submission; (5) Self-confidence; and (6) Sociability.

This study will attempt to show the relationship between successful Adult Program Secretaries and the six personality items on the Bernreuter Inventory.

You, as a General Secretary, can cooperate in this study by giving only a few minutes of your time:

Have two staff persons with some relationship to Adult Program fill out the enclosed Personality Inventories and return them to you.

Fill in the box at the top of each Personality Inventory as follows: Opposite each item, write in the words which best describe this man according to these categories--Strong, Average, Weak.

1. Enlisting and supervising volunteers
2. Organizing and guiding committees
3. Counseling individuals
4. Understanding persons and skill in dealing with them.
5. Locating needs and interests of people.
6. Cooperating with social agencies, churches, and other community groups.
7. Preparing and interpreting records and reports.
8. Interpreting Y.M.C.A. objectives.
9. Creating publicity materials.
10. Securing members.
11. Speaking in public

12. Leading discussions
13. Directing a staff.
14. Locating and organizing groups.
15. Planning and supervising group programs.
16. Supervising group leaders.
17. Directing informal adult education.
18. Directing religious programs.
19. Conducting recreational activities.
20. Managing a budget.
21. Managing a building and equipment.
22. Making studies.
23. Cooperates and works well with the rest of the staff.
24. Makes a pleasing appearance.
25. Takes responsibility well.
26. Physical health and vitality.
27. Emotional poise and maturity.
28. Ability to attack and solve problems.
29. Has a dynamic Christian spirit.
30. Appreciates social values implicit in the profession.

The Personality Inventory is not to be signed. There is no identifying data on it. All results will be confidential. Be honest about the person — those reported as doing an average or weak job will help make a more accurate rating scale.

If you would like a copy of the final results of this study, please fill in the lines for this information on the Personality Inventory sheet.

Please return these forms no later than May 31, in order to have this data included in this commission's study at the Cleveland Centennial Convention in June.

Just put the material in the self-addressed envelope and mail it today!

Thank you for your cooperation,

Richard E. Hamlin  
Chairman

A.G.P.S. Commission on "Psychological  
Blocks Within the Adult Program Secretary"

## APPENDIX B

1.	7.	13.	19.	25.
2.	8.	14.	20.	26.
3.	9.	15.	21.	27.
4.	10.	16.	22.	28.
5.	11.	17.	23.	29.
6.	12.	18.	24.	30.

# THE PERSONALITY INVENTORY

By ROBERT G. BERNREUTER

College Degree? \_\_\_\_\_

Age \_\_\_\_\_

Sex \_\_\_\_\_

PUBLISHED BY  
STANFORD UNIVERSITY PRESS  
STANFORD UNIVERSITY, CALIFORNIA

Years of  
Experience \_\_\_\_\_

Do you want an Analysis of this test? \_\_\_\_\_

If so, please fill in the following: \_\_\_\_\_ Date \_\_\_\_\_

Mail to: \_\_\_\_\_

NAME \_\_\_\_\_

Address \_\_\_\_\_

Name of school \_\_\_\_\_ School grade \_\_\_\_\_  
or business firm \_\_\_\_\_ or occupation \_\_\_\_\_

	B1-N	B2-S	B3-I	B4-D	F1-C	F2-S
Plus						
Minus						
Difference						
Percentile	%	%	%	%	%	%

H.S.—COLL.—ADULT

Based on

norms

MALE—FEMALE

Copyright 1935 by the Board of Trustees of the  
Leland Stanford Junior University

All rights reserved

39. Yes No ? Do you worry too long over humiliating experiences?
40. Yes No ? Have you ever organized any clubs, teams, or other groups on your own initiative?
41. Yes No ? If you see an accident do you quickly take an active part in giving aid?
42. Yes No ? Do you get stage fright?
43. Yes No ? Do you like to bear responsibilities alone?
44. Yes No ? Have books been more entertaining to you than companions?
45. Yes No ? Have you ever had spells of dizziness?
46. Yes No ? Do jeers humiliate you even when you know you are right?
47. Yes No ? Do you want someone to be with you when you receive bad news?
48. Yes No ? Does it bother you to have people watch you at work even when you do it well?
49. Yes No ? Do you often experience periods of loneliness?
50. Yes No ? Do you usually try to avoid arguments?
51. Yes No ? Are your feelings easily hurt?
52. Yes No ? Do you usually prefer to do your own planning alone rather than with others?
53. Yes No ? Do you find that telling others of your own personal good news is the greatest part of the enjoyment of it?
54. Yes No ? Do you often feel lonesome when you are with other people?
55. Yes No ? Are you thrifty and careful about making loans?
56. Yes No ? Are you careful not to say things to hurt other people's feelings?
57. Yes No ? Are you easily moved to tears?
58. Yes No ? Do you ever complain to the waiter when you are served inferior or poorly prepared food?
59. Yes No ? Do you find it difficult to speak in public?
60. Yes No ? Do you ever rewrite your letters before mailing them?
61. Yes No ? Do you usually enjoy spending an evening alone?
62. Yes No ? Do you make new friends easily?
63. Yes No ? If you are dining out do you prefer to have someone else order dinner for you?
64. Yes No ? Do you usually feel a great deal of hesitancy over borrowing an article from an acquaintance?
65. Yes No ? Are you greatly embarrassed if you have greeted a stranger whom you have mistaken for an acquaintance?
66. Yes No ? Do you find it difficult to get rid of a salesman?
67. Yes No ? Do people ever come to you for advice?
68. Yes No ? Do you usually ignore the feelings of others when accomplishing some end which is important to you?
69. Yes No ? Do you often find that you cannot make up your mind until the time for action has passed?
70. Yes No ? Do you especially like to have attention from acquaintances when you are ill?
71. Yes No ? Do you experience many pleasant or unpleasant moods?
72. Yes No ? Are you troubled with feelings of inferiority?
73. Yes No ? Does some particularly useless thought keep coming into your mind to bother you?
74. Yes No ? Do you ever upbraid a workman who fails to have your work done on time?
75. Yes No ? Are you able to play your best in a game or contest against an opponent who is greatly superior to you?
76. Yes No ? Have you frequently appeared as a lecturer or entertainer before groups of people?
77. Yes No ? Are people sometimes successful in taking advantage of you?
78. Yes No ? When you are in low spirits do you try to find someone to cheer you up?
79. Yes No ? Can you usually understand a problem better by studying it out alone than by discussing it with others?
80. Yes No ? Do you lack self-confidence?
81. Yes No ? Does admiration gratify you more than achievement?
82. Yes No ? Are you willing to take a chance alone in a situation of doubtful outcome?
83. Yes No ? Does your ambition need occasional stimulation through contact with successful people?

BERNREUTER PERCENTILE SCORES  
ON ALL 100 MEN

<u>Man</u>	<u>B1-N</u>	<u>B2-S</u>	<u>B3-I</u>	<u>B4-D</u>	<u>F1-G</u>	<u>F2-S</u>
1.	1	45	2	99	1	2
2.	47	94	69	76	43	93
3.	7	67	8	83	12	23
4.	6	17	8	67	19	1
5.	1	57	4	99	1	13
6.	44	8	51	52	73	16
7.	4	81	4	95	1	50
8.	45	51	46	37	70	88
9.	1	40	5	98	2	33
10.	85	6	74	17	90	24
11.	18	9	28	83	30	4
12.	18	50	8	63	26	20
13.	50	62	49	35	61	39
14.	1	25	4	92	28	2
15.	1	48	2	93	3	8
16.	8	21	8	84	22	4
17.	2	32	4	99	2	6
18.	1	54	2	83	5	10
19.	5	23	9	86	17	8
20.	9	12	6	93	18	3
21.	54	35	65	67	64	50
22.	18	50	11	71	22	32
23.	5	51	8	83	10	20
24.	2	29	4	96	4	10



<u>Man</u>	<u>B1-N</u>	<u>B2-S</u>	<u>B3-I</u>	<u>B4-D</u>	<u>F1-C</u>	<u>F2-S</u>
25.	1	71	3	98	1	39
26.	24	48	41	72	53	20
27.	2	32	8	84	63	8
28.	5	32	12	96	8	8
29.	16	33	16	72	28	7
30.	14	35	10	79	30	11
31.	72	17	80	52	65	41
32.	14	42	43	89	47	21
33.	15	24	23	76	30	5
34.	26	30	39	57	63	14
35.	8	81	24	99	11	62
36.	20	86	24	66	31	62
37.	10	55	16	96	13	26
38.	24	90	52	79	38	72
39.	4	26	15	83	99	5
40.	2	48	3	77	12	9
41.	1	67	2	98	1	24
42.	15	82	35	87	15	72
43.	63	53	24	77	30	41
44.	1	52	4	93	1	14
45.	6	44	13	99	11	7
46.	10	43	7	81	13	9
47.	4	62	8	96	11	36
48.	31	8	32	36	49	2
49.	1	67	5	98	1	7
50.	1	24	1	72	10	1

<u>Man</u>	<u>B1-N</u>	<u>B2-S</u>	<u>B3-1</u>	<u>B4-D</u>	<u>F1-C</u>	<u>F2-S</u>
51.	33	24	40	58	52	17
52.	1	16	3	93	6	7
53.	1	30	5	53	4	5
54.	19	28	23	63	29	12
55.	2	59	6	77	16	4
56.	4	45	10	98	16	12
57.	44	39	57	63	62	61
58.	9	15	13	78	28	3
59.	21	39	22	75	37	38
60.	63	17	62	56	75	34
61.	58	32	27	91	20	17
62.	56	35	48	6	72	29
63.	15	19	13	71	26	1
64.	28	20	28	81	32	12
65.	1	51	5	90	3	11
66.	6	47	28	73	23	6
67.	3	27	6	8	10	1
68.	68	8	50	16	70	1
69.	8	48	20	95	9	39
70.	60	25	56	56	72	35
71.	17	30	17	99	28	18
72.	11	32	10	64	19	7
73.	26	44	40	80	31	46
74.	72	3	77	63	87	12
75.	1	47	3	89	8	4
76.	33	67	47	95	44	57

<u>Man</u>	<u>B1-N</u>	<u>B2-S</u>	<u>B3-1</u>	<u>B4-D</u>	<u>F1-C</u>	<u>F2-S</u>
77.	19	38	6	69	28	17
78.	8	55	7	95	23	21
79.	6	55	10	81	13	19
80.	1	59	3	89	9	8
81.	39	84	60	88	46	89
82.	14	35	16	83	21	98
83.	2	78	6	81	11	21
84.	56	10	62	64	55	59
85.	39	78	32	41	8	58
86.	1	64	5	92	8	12
87.	51	18	57	60	70	19
88.	40	48	44	63	67	53
89.	12	27	5	99	18	6
90.	58	79	12	46	72	71
91.	47	55	51	40	64	13
92.	34	33	50	87	43	54
93.	5	45	13	95	15	21
94.	39	32	50	83	49	21
95.	78	4	82	43	88	13
96.	59	15	54	32	73	23
97.	3	23	5	95	5	45
98.	3	15	9	89	14	4
99.	23	46	25	65	27	23
100.	1	30	2	99	1	6

## APPENDIX C

3 X 3 GRIDS USED IN  
ARRIVING AT CHI SQUARE OF EACH  
BEANREUTER CATEGORY

NEUROTIC TENDENCY  
BI-N

Percentile rankings of neurotic tendency scores

		66-2/3 - 100%	33-1/3 - 66-2/3%	0 - 33-1/3%	
"Strong" Grouping of men	O	2	5.00	26.00	33
	C	<u>1.65</u>	<u>6.93</u>	<u>24.42</u>	
	O-C	.35	- 1.93	1.58	
	(O-C) <sup>2</sup>	.12	3.61	2.56	
"Average" Grouping of men	O	0	5	29.00	34
	C	<u>1.70</u>	<u>7.14</u>	<u>25.16</u>	
	O-C	- 1.70	- 2.14	3.84	
	(O-C) <sup>2</sup>	2.9	4.58	14.75	
"Weak" Grouping of men	O	3.00	11.00	19.00	33
	C	<u>1.65</u>	<u>6.93</u>	<u>14.42</u>	
	O-C	1.35	4.07	- 5.42	
	(O-C) <sup>2</sup>	1.82	16.6	29.38	
		5	21	74	100

O = Observed      C = Calculated Frequency      Degrees of Freedom = 4

$$\text{Chi Square} = \sum \left\{ \frac{(O - C)^2}{C} \right\} \quad (2-1)(3-1)$$

$$\text{Calc. Freq.} = \left( \frac{33}{100} \right) (5) = 1.65$$

$$(.33)(21) = 6.93$$

$$(.33)(74) = 24.42$$

$$(.34)(5) = 1.70$$

$$(.34)(21) = 7.14$$

$$(.34)(74) = 25.16$$

$$(.33)(5) = 1.65$$

$$(.33)(21) = 6.93$$

$$(.33)(74) = 24.42$$

$$\frac{(O-C)^2}{C} = \frac{.12}{1.65} = .07 \quad \frac{1.8}{1.7} = 1.06$$

$$\frac{3.61}{6.93} = .52 \quad \frac{16.6}{6.9} = 2.40$$

$$\frac{2.56}{24.42} = .10 \quad \frac{29.4}{24.4} = 1.20$$

$$\frac{2.9}{1.7} = 1.70 \quad 8.27$$

$$\frac{4.6}{7.1} = .64 \quad \chi^2 = 8.27$$

$$\frac{14.8}{25.2} = .58$$

SELF-SUFFICIENCY  
B2-S

Percentile rankings of self-sufficiency scores in thirds

		66-2/3- 100%	33-1/3- 66-2/3%	0 - 33-1/3%	
"Strong" Grouping of men	O	4	14.00	15.0	33
	C	<u>4.62</u>	<u>13.9</u>	<u>14.5</u>	
	O-C	<u>-.62</u>	<u>.1</u>	<u>.5</u>	
	(O-C) <sup>2</sup>	.38	.01	.25	
"Average" Grouping of men	O	6.00	14	14.00	34
	C	<u>4.76</u>	<u>14.18</u>	<u>14.96</u>	
	O-C	<u>1.24</u>	<u>-.18</u>	<u>-.96</u>	
	(O-C) <sup>2</sup>	1.54	.03	.92	
"Weak" Grouping of men	O	4.00	14.0	15.0	33
	C	<u>4.62</u>	<u>13.9</u>	<u>14.5</u>	
	O-C	<u>-.62</u>	<u>.1</u>	<u>.5</u>	
	(O-C) <sup>2</sup>	.38	.01	.25	
		14	42	44	100

O = Observed      C = Calculated Frequency      Degrees of Freedom = 4  
(2-1)(C-1)

$$\begin{aligned} \text{Calc. Freq.} &= (.33)(14) = 4.62 & \frac{(O-C)^2}{C} &= \frac{.38}{4.62} = .08 \\ &= (.33)(42) = 13.9 & & \\ &\text{..... etc.} & & \end{aligned}$$

$$\frac{.01}{13.9} = .0007$$

..... etc.

$$\overline{.5774}$$

$$\chi^2 = .5774$$

INTROVERSION  
B3-I

Percentile rankings of introversion scores in thirds

"Strong" Grouping of men	O	3.00	6.00	24.0	33
	C	<u>1.65</u>	<u>8.25</u>	<u>23.1</u>	
	O-C	1.35	- 2.25	.9	
	(O-C) <sup>2</sup>	1.82	5.06	.81	
"Average" Grouping of men	O	0	7	27.00	34
	C	<u>1.70</u>	<u>8.5</u>	<u>23.80</u>	
	O-C	- 1.70	- 1.55	3.20	
	(O-C) <sup>2</sup>	2.9	2.25	10.24	
"Weak" Grouping of men	O	2.00	12.00	19.0	33
	C	<u>1.65</u>	<u>8.25</u>	<u>23.1</u>	
	O-C	.35	3.75	- 4.1	
	(O-C) <sup>2</sup>	.12	14.06	16.8	
		5	25	70	100

O = Observed      C = Calculated Frequency      Degrees of Freedom = 4  
(2-1)(3-1)

$$\text{Calc. Freq.} = (.33)(5) = 1.65$$

..... etc.

$$\frac{(O-C)^2}{C} = \frac{1.82}{1.65} = 1.1$$

$$\frac{5.06}{8.25} = .61$$

..... etc.

6.628

$$\chi^2 = 6.628$$

DOMINANCE  
B4-D

Percentile rankings of dominance scores in thirds

		66-2/3 - 100%	33-1/3 - 66-2/3%	0 - 33-1/3%	
"Strong" Grouping of men	O	26.0	6	1	33
	C	<u>23.1</u>	<u>8.25</u>	<u>1.65</u>	
	O-C	2.9	- 2.25	- .65	
	(O-C) <sup>2</sup>	8.41	5.06	.42	
"Average" Grouping of men	O	24.0	8	2.0	34
	C	<u>23.8</u>	<u>8.5</u>	<u>1.7</u>	
	O-C	.2	- .5	.3	
	(O-C) <sup>2</sup>	.04	.25	.09	
"Weak" Grouping of men	O	20.	11.00	2.00	33
	C	<u>23.1</u>	<u>8.25</u>	<u>1.65</u>	
	O-C	- 3.1	2.75	.35	
	(O-C) <sup>2</sup>	9.61	7.56	.123	
		14	42	44	100

O = Observed      C = Calculated Frequency      Degrees of Freedom = 4  
(2-1)(C-1)

$$\text{Calc. Frequency} = (.33)(70) = 23.1 \quad \frac{(O-C)^2}{C} = \frac{8.41}{23.1} = .36$$

..... etc.

$$\frac{5.06}{8.25} = .61$$

..... etc.

---

2.6976

$$\chi^2 = 2.6976$$



CONFIDENCE  
F<sub>1</sub>-C

Percentile rankings of confidence scores in thirds

		66-2/3 - 100%	33-1/3 - 66-2/3%	0 - 33-1/3%	
"Strong" Groupings of men	O	3.	7.	23.00	33
	C	<u>4.62</u>	<u>6.27</u>	<u>22.11</u>	
	O-C	- 1.62	-.73	-.89	
	(O-C) <sup>2</sup>	2.62	.533	.79	
"Average" Groupings of men	O	3.	6.	25.00	34
	C	<u>4.76</u>	<u>6.46</u>	<u>20.78</u>	
	O-C	- 1.76	-.46	4.22	
	(O-C) <sup>2</sup>	3.048	.21	17.81	
"Weak" Groupings of men	O	8.00	6.	19.	33
	C	<u>4.62</u>	<u>6.27</u>	<u>22.11</u>	
	O-C	3.38	-.27	- 3.11	
	(O-C) <sup>2</sup>	11.42	.073	9.67	
		14	19	67	100

O = Observed

C = Calculated Frequency

Degrees of Freedom = 4  
(2-1)(3-1)

$$\text{Calc. Freq.} = (.33)(14) = 4.62$$

..... etc.

$$\frac{(O-C)^2}{C} = \frac{2.62}{4.62} = .570$$

$$\frac{.53}{6.27} = .084$$

..... etc.

---


$$5.162$$

$$\chi^2 = 5.162$$

SOCIABILITY  
F2-S

Percentile rankings of sociability scores in thirds

		66-2/3 - 100%	33-1/3 - 66-2/3%	0 - 33-1/3%	
"Strong" Groupings of men	O	2.00	5.00	26.00	33
	C	<u>2.31</u>	<u>6.93</u>	<u>23.76</u>	
	O-C	-.31	- 1.93	2.24	
	(O-C) <sup>2</sup>	.096	3.73	5.02	
"Average" Groupings of men	O	2.00	7.00	25.00	34
	C	<u>2.38</u>	<u>7.14</u>	<u>24.48</u>	
	O-C	-.38	-.14	.52	
	(O-C) <sup>2</sup>	.144	.02	.27	
"Weak" Groupings of men	O	3.00	9.00	21.00	33
	C	<u>2.31</u>	<u>6.93</u>	<u>23.76</u>	
	O-C	.69	2.07	- 2.76	
	(O-C) <sup>2</sup>	.48	4.29	7.62	
		7	21	72	100

O = Observed    C = Calculated Frequency    Degrees of Freedom = 4  
(2-1)(C-1)

Calc. Frequency = (.33)(7) = 2.31  
..... etc.

$$\frac{(O-C)^2}{C} = \frac{.096}{2.31} = .0410$$

$$\frac{3.73}{6.93} = .5380$$

..... etc.

---

1.964

$$\chi^2 = 1.964$$